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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/677,395	10/01/2003	Sonia E. Letant	IL-11138	8871

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EXAMINER

CROW, ROBERT THOMAS

ART UNIT	PAPER NUMBER
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1634

DATE MAILED: 05/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/677,395	Applicant(s) LETANT ET AL.	
	Examiner Robert T. Crow	Art Unit 1634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
 4a) Of the above claim(s) 10 and 11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-9, drawn to an apparatus for binding molecules, classified in class 435, subclass 283.1.
- II. Claims 10 and 11, drawn to a method for providing substrates, classified in class 435, subclass 6.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product. See MPEP § 806.05(h). In the instant case the apparatus of claim 1 can be used to filter water.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter as exemplified by their different classification, restriction for examination purposes as indicated is proper. Furthermore, a search for the inventions of all of the groups would not be co-extensive because a search indicating the *process is* novel or nonobvious

would not extend to a holding that the *product itself is* novel or nonobvious; similarly, a search indicating that *the product is* known or would have been obvious would not extend to a holding that *the process is* known or would have been obvious.

The examiner has required restriction between product and process claims. Where applicant elects claims directed to the product, and a product claim is subsequently found allowable, withdrawn process claims that depend from or otherwise include all the limitations of the allowable product claim will be rejoined in accordance with the provisions of MPEP § 821.04. **Process claims that depend from or otherwise include all the limitations of the patentable product** will be entered as a matter of right if the amendment is presented prior to final rejection or allowance, whichever is earlier. Amendments submitted after final rejection are governed by 37 CFR 1.116; amendments submitted after allowance are governed by 37 CFR 1.312. In the event of rejoinder, the requirement for restriction between the product claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103, and 112. Until an elected product claim is found allowable, an otherwise proper restriction requirement between product claims and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowed product claim will not be rejoined. See "Guidance on Treatment of Product and Process Claims in light of *In re Ochiai*, *In re Brouwer* and 35 U.S.C. § 103(b)," 1184 O.G. 86 (March 26, 1996). Additionally, in order to retain the right to rejoinder in accordance with the above policy, Applicant is advised that the process claims should be amended during prosecution either to maintain dependency on the product claims or to otherwise include the limitations of the product claims. **Failure to do so may result in a loss of the right to rejoinder.** Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

During a telephone conversation with John Lee on 25 April 2006 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-9. Affirmation of this election must be made by applicant in replying to this Office action.

Claims 10 and 11 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Specification

The disclosure is objected to because of the following informalities: the disclosure lacks a brief description of the figures.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

1. Claims 1-9 are indefinite in claims 1 and 7, each of which recite the limitation "the inner walls" in line 6 of each of claims 1 and 7 and in line 7 of claim 7. There is insufficient antecedent basis for this limitation in the claims. It is suggested that the word "the" be dropped in each instance in each of the claims.
2. Claims 6 and 9 are indefinite in the recitation "Silicon Nitride, a Silicon On Insulator (SOI) wafer, and a layer of Silicon Nitride" in lines 1-2 of each of the claims. It is unclear what structure is defined by this limitation is; i.e., if the capitalization of the terms is indicative of any trademarks, if "Silicon On Insulator" refers to a single layer of silicon on an insulator or an insulator coated on all sides with silicon, etc.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1-2, and 7-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Beattie (U.S. Patent No. 5,843,767, issued 1 December 1998).

Regarding claim 1, Beattie teach an apparatus comprising: a substrate having at least one aperture having a tapered portion with a top diameter greater than a bottom diameter and wherein the tapered portion of the aperture transitions into a cylindrical portion having a diameter equal to said bottom diameter of said tapered portion (e.g., Figures 1a and 4); cross-linkers attached to the inner walls of said aperture (e.g., epoxysilane-amine linkages are provided to attach biopolymers; column 13, lines 45-50); and a macro-cyclic ring, having a diameter substantially the same as the diameter of the cylindrical portion of said aperture, attached at or near the circumference of one end of the cylindrical portion of said aperture (e.g., a polymeric layer containing an array of orifices is aligned with an array of nanochannels [column 10, lines 34-44], wherein the layers are bound with an adhesive [column 10, lines 60-67]; wherein the adhesive is ablated to produce a hole [i.e., a ring] with an inner diameter that allows flow from the sample well and nanopores; column 11, lines 32-38).

Regarding claim 2, Beattie teaches the apparatus of claim 1, wherein the substrate is made from glass (Example I).

Regarding claim 7, Beattie teach an apparatus comprising: a substrate having at least one aperture having a tapered portion with a top diameter greater than a bottom diameter and wherein the tapered portion of the aperture transitions into a cylindrical portion having a diameter equal to said bottom diameter of said tapered portion (e.g.,

Figures 1a and 4); cross-linkers attached to the inner walls of said aperture (e.g., epoxysilane-amine linkages are provided to attach biopolymers; column 13, lines 45-50); and antibodies or chemical functional groups deposited around the inner walls of the aperture or around the circumference of one end of said aperture (e.g., amine containing biopolymers are attached to the walls; column 13, lines 45-50).

Regarding claim 8, Beattie teaches the apparatus of claim 7, wherein the substrate is made from glass (Example I).

2. Claims 1, 2, 4, 5, 7, and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Akeson et al (Biophys. J. vol. 77, pp. 3227-3233 (1999)).

Regarding claim 1, Akeson et al teach an apparatus comprising: a substrate having at least one aperture having a tapered portion with a top diameter greater than a bottom diameter and wherein the tapered portion of the aperture transitions into a cylindrical portion having a diameter equal in diameter to said bottom diameter of said tapered portion (e.g., Figure 1, wherein the cylindrical portion is the part of the figure wherein the lipid bilayer is shown); cross-linkers attached to the inner walls of said aperture (e.g., the lipid bilayer in the aperture; Figure 1); and a macro-cyclic ring, having a diameter substantially the same as the diameter of the cylindrical portion of said aperture, attached at or near the circumference of one end of the cylindrical portion of said aperture (e.g., one α -hemolysin channel is inserted in the bilayer; Figure 1).

Regarding claim 2, Akeson et al teach the apparatus of claim 1, wherein the substrate is polymeric materials (e.g., Teflon; caption of Figure 1).

Regarding claim 4, Akeson et al teach the apparatus of claim 1, wherein a chemical or biological probe is attached to the macro-cyclic ring such that the biological or chemical probe extends into and rests between at least a portion of the surfaces of the inner walls of the cylindrical portion of said aperture (e.g., Figure 1, which shows a nucleic acid trapped in the pore).

Regarding claim 5, Akeson et al teach the apparatus of claim 4, wherein the biological probe comprises a single strand sequence of DNA (e.g., the device is used with poly dC; Figures 1 and 4)

Regarding claim 7, Akeson et al teach an apparatus comprising: a substrate having at least one aperture having a tapered portion with a top diameter greater than a bottom diameter and wherein the tapered portion of the aperture transitions into a cylindrical portion having a diameter equal in diameter to said bottom diameter of said tapered portion (e.g., Figure 1, wherein the cylindrical portion is the part of the figure wherein the lipid bilayer is shown); cross-linkers attached to the inner walls of said aperture (e.g., the lipid bilayer in the aperture; Figure 1); and chemical functional groups deposited around the inner walls of the aperture or around the circumference of one end of said aperture (e.g., one α -hemolysin channel is inserted in the bilayer; Figure 1).

Regarding claim 8, Akesson et al teach the apparatus of claim 7, wherein the substrate is polymeric materials (e.g., Teflon; caption of Figure 1).

3. Claims 1-5 and 7-8 are rejected under 35 U.S.C. 102(a,e) as being anticipated by Letant et al (U.S. Patent Application Publication No. US 2002/0191884 A1, published 19 December 2002).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding claim 1, Letant et al teach an apparatus comprising: a substrate having at least one aperture having a tapered portion with a top diameter greater than a bottom diameter and wherein the tapered portion of the aperture transitions into a cylindrical portion having a diameter equal to said bottom diameter of said tapered portion (e.g., pyramidal nucleation pits are prepared on a wafer, followed by pore generation on each pyramid; paragraphs 0035-0037); cross-linkers attached to the inner walls of said aperture (e.g., functional groups are attached to the pores; paragraphs 0040-0043); and a macro-cyclic ring, having a diameter substantially the same as the diameter of the

cylindrical portion of said aperture, attached at or near the circumference of one end to the cylindrical portion of said aperture (paragraph 0024).

Regarding claim 2, Letant et al teach the apparatus of claim 1, wherein the substrate is a semiconductor (e.g., a silicon wafer; paragraph 0005).

Regarding claim 3, Letant et al teach the apparatus of claim 1, wherein the macro-cyclic ring has a rigid phenylethynyl backbone (paragraph 0024 and Figures 3A and 3B).

Regarding claim 4, Letant et al teach the apparatus of claim 1, wherein a biological or chemical probe is attached to the macro-cyclic ring such that the biological or chemical probe extends into and rests between at least a portion of the surfaces of the inner walls (paragraph 0024 and Figures 3A and 3B).

Regarding claim 5, Letant et al teach the apparatus of claim 4, wherein the biological probe comprises a single strand sequence of DNA (paragraph 0024).

Regarding claim 7, Letant et al teach an apparatus comprising: a substrate having at least one aperture having a tapered portion with a top diameter greater than a bottom diameter and wherein the tapered portion of the aperture transitions into a cylindrical portion having a diameter equal to said bottom diameter of said tapered portion (e.g., pyramidal nucleation pits are prepared on a wafer, followed by pore generation on each pyramid; paragraphs 0035-0037); cross-linkers attached to the inner walls of said aperture (e.g., functional groups are attached to the pores; paragraphs 0040-0043); and

antibodies or chemical functional groups deposited around the inner walls of the aperture of around the circumference of one end of said aperture (paragraph 0024).

Regarding claim 8, Letant et al teach the apparatus of claim 7, wherein the substrate is a semiconductor (e.g., a silicon wafer; paragraph 0005).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Beattie (U.S. Patent No. 5,843,767, issued 1 December 1998) in view of Akeson et al (Biophys. J. vol. 77, pp. 3227-3233 (1999)) as applied to claim 1 above, and further in view of Hoger (J. Polymer Sci. Part A; Poly. Chem., vol. 37, pp.2685-2698 (1999)).

Regarding claim 3, the apparatus of claim 1 is discussed above. Neither Beattie nor Akeson et al teach rigid phenylethynyl backbones.

However, Hoger et al teach macro-cyclic rings comprising rigid phenylethynyl backbones (Abstract) with the added benefit that they are host molecules that recognize guest molecules by precise complementarity (page 2687, column 2, lines 19-25).

It would therefore have been obvious to a person of ordinary skill in the art at the time the invention was claimed to have modified the method as taught by Beattie in view of Akeson et al with the macro-cyclic ring as taught by Hoger et al with a reasonable expectation of success. The ordinary artisan would have been motivated to make such a modification because said modification would have resulted in host molecules that recognize guest molecules by precise complementarity (page 2687, column 2, lines 19-25).

3. Claims 1, 6, 7, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beattie (U.S. Patent No. 5,843,767, issued 1 December 1998) in view of Letant et al (Nature Materials, vol. 2 pp. 391-395 (June, 2003)).

Regarding claims 6 and 9, the apparatus of claims 1 and 7 are discussed above. Beattie also teaches the apparatus of claim 7 comprising: a substrate having at least one aperture having a tapered portion with a top diameter greater than a bottom diameter and wherein the tapered portion of the aperture transitions into a cylindrical portion having a diameter equal to said bottom diameter of said tapered portion (e.g., pyramidal nucleation pits are prepared on a wafer, followed by pore generation on each pyramid; paragraphs 0035-0037); cross-linkers attached to the inner walls of said aperture (e.g., functional groups are attached to the pores; paragraphs 0040-0043); and antibodies or chemical functional groups deposited around the inner walls of the aperture or around the circumference of one end of said aperture (paragraph 0024). While Beattie et al also teach porous silicon wafers (column 9, lines 17-19), Beattie et al are silent on Silicon Nitride, a Silicon On Insulator (SOI) wafer, and a layer of Silicon Nitride.

However, Letant et al teach porous silicon membranes (Abstract) having a substrate comprising Silicon Nitride, a Silicon On Insulator (SOI) wafer, and a layer of Silicon Nitride (page 394, column 2, paragraphs 2 and 3) with the added benefit that the silicon nitride top and bottom masks prevent derivatization of the remainder of the substrate, thereby preventing binding on the top and bottom surface (page 394, column 2, paragraph 3).

It would therefore have been obvious to a person of ordinary skill in the art at the time the invention was claimed to have modified the apparatus as taught by Beattie

with the substrate as taught by Letant et al with a reasonable expectation of success.

The ordinary artisan would have been motivated to make such a modification because said modification would have resulted in masks prevention of derivatization of the remainder of the substrate, thereby preventing binding on the top and bottom surface as explicitly taught by Letant et al (page 394, column 2, paragraph 3).

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

1. Claims 1-9 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-8, 10-11, 14-15, 17-41, 44-48, and 74-82 of copending Application No. 11/140,391. Although the conflicting claims are not identical, they are not patentably distinct from each other because both sets of claims are drawn to porous substrates comprising biological molecules, anchors, and

proteins (i.e., antibodies). While the '391 claims are further drawn to a sample holder, a beam source and an energy detector, these additional structural limitations are encompassed by the open claim language "comprising" in the instant claims.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

2. Claims 1-9 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-5 of U.S. Patent No. 6,785,432 B1 in view of Akeson et al (Biophys. J. vol. 77, pp. 3227-3233 (1999)). Although the conflicting claims are not identical, they are not patentably distinct from each other because both sets of claims are drawn to porous substrates comprising cross-linkers and immobilized chemical or biological probes (i.e., the specific anchors of the '432 claims). While the instant claims are drawn to macro-cyclic rings, Akeson et al teach an apparatus comprising: a substrate having at least one aperture having a tapered portion with a top diameter greater than a bottom diameter and wherein the tapered portion of the aperture transitions into a cylindrical portion having a diameter equal in diameter to said bottom diameter of said tapered portion (e.g., Figure 1, wherein the cylindrical portion is the part of the figure wherein the lipid bilayer is shown); cross-linkers attached to the inner walls of said aperture (e.g., the lipid bilayer in the aperture; Figure 1); and a macro-cyclic ring, having a diameter substantially the same as the diameter of the cylindrical portion of said aperture, attached at or near the circumference of one end

of the cylindrical portion of said aperture (e.g., one α -hemolysin channel is inserted in the bilayer; Figure 1) with the added advantage that the macro-cyclic ring provides rapid discrimination between pyrimidine and purine segments along a nucleic acid (Abstract, lines 4-5).

It would therefore have been obvious to a person of ordinary skill in the art at the time the invention was claimed to have modified the claims of the '432 patent with the macro-cyclic ring as taught by Akeson et al with a reasonable expectation of success. The ordinary artisan would have been motivated to make such a modification because said modification would have resulted in rapid discrimination between pyrimidine and purine segments along a nucleic acid as explicitly taught by Akeson et al (Abstract, lines 4-5).

Conclusion


No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert T. Crow whose telephone number is (571) 272-1113. The examiner can normally be reached on Monday through Friday from 8:00 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ram Shukla can be reached on (571) 272-0735. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Robert T. Crow
Examiner
Art Unit 1634


5/19/06


BJ FORMAN, PH.D.
PRIMARY EXAMINER